California Environmental Protection Agency AIR RESOURCES BOARD	YANMAR CO., LTD.	EXECUTIVE ORDER U-R-028-0138 New Off-Road Compression-Ignition Engines

Pursuant to the authority vested in the Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engines and emission control systems produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	DISPLACEMENT (liters)	FUEL TYPE	USEFUL LIFE (hours)
2003	3YDXL0.78P3N	0.784	Diesel	3000

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION
Indirect Diesel Injection	Crane, Loader, Tractor, Dozer, Pump, Compressor, Excavator

The engine models and codes are attached.

The following are the exhaust certification standards (STD) and certification levels (CERT) for hydrocarbons (HC), oxides of nitrogen (NOx), or non-methane hydrocarbons plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kW-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

RATED POWER CLASS	EMISSION STANDARD CATEGORY		EXHAUST (g/kw-hr)					OPACITY (%)		
			HC	NOx	NMHC+NOx	CO	PM	ACCEL	LUG	PEAK
8 ≤ kW < 19	Tier 1	STD	N/A	N/A	9.5	6.6	0.80	20	15	50
		CERT	--	--	4.8	3.1	0.43	2	6	7

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.

Executed at El Monte, California on this 23rd day of December 2002.

Raphael Susnowitz
for Allen Lyons, Chief
Mobile Source Operations Division

Engine Model S mary Form

Manufacturer: Yanmar Co.,Ltd.
Engine category: Nonroad CI
EPA Engine Family: 3YDXL0.78P3N
Mfr Family Name: N/A
Process Code: New Submission

ATTACHMENT

EO U-R-028-0138

1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J1930
N/A	3TNE68-EVHV	22.0/3600	17.6	10.4	36.0/2600	18.1	7.8	EM
N/A	3TNE68L-EUB (8.6)	11.5/2000	15.7	5.2	35.1/1600	17.6	4.6	EM
N/A	3TNE68L-EUB	11.6/2000	15.8	5.2	35.2/1600	17.6	4.6	EM
N/A	3TNE68-ETB1	12.3/2100	15.9	5.5	34.8/1700	17.5	4.9	EM
N/A	3TNE68-ETBZ	12.3/2100	15.9	5.5	34.8/1700	17.5	4.9	EM
N/A	3TNE68L-EUB	13.2/2250	15.9	5.9	35.1/1600	17.6	4.6	EM
N/A	3D68-N3FAE	14.6/2450	16.2	6.5	34.8/1800	17.4	5.2	EM
N/A	3TNE68-ENSR	12.9/2200	15.9	5.8	34.7/1800	17.4	5.2	EM
N/A	3TNE68-ENBV	15.1/2600	15.8	6.8	33.4/2100	16.7	5.8	EM
N/A	3D68-N3FBE	15.9/2600	16.6	7.1	34.7/1800	17.4	5.2	EM (10)
N/A	3TNE68-ELG4	17.3/3000	15.6	7.7	32.9/2250	16.5	6.1	EM
N/A	3TNE68-EAC (17)	23.0/3600	18.2	10.8	35.7/2700	17.9	8.0	EM
N/A	3TNE68C-EJT	18.1/3200	15.4	8.1	32.0/2700	16.1	7.1	EM
N/A	3TNE68-EYB	11.9/2000	16.1	5.3	35.9/1500	18.0	4.4	EM
N/A	3TNE68C-EYA	17.8/3000	16.1	7.9	35.2/2250	17.7	6.5	EM
N/A	3TNE68C-EYA	20.2/3600	15.2	9.0	32.8/2500	16.4	6.8	EM
N/A	3D68E-3GB	14.1/2450	15.6	6.3	33.2/1800	16.7	4.9	EM
N/A	3D68E-3HB	15.8/2600	16.5	7.1	34.2/1800	17.2	5.1	EM
N/A	3TNE68-ENBA	15.4/2600	16.1	6.9	34.7/1800	17.4	5.2	EM
N/A	3TNE68C-ENJ	17.1/3000	15.5	7.6	32.1/2300	16.1	6.1	EM
N/A	3TNE68-EYE	14.6/2500	15.8	6.5	33.2/1800	16.6	4.9	EM
N/A	3D68E-3KB	15.7/2600	16.4	7.0	33.1/1800	16.6	4.9	EM
N/A	3D68E-3KJ	15.7/2600	16.4	7.0	33.4/1800	16.7	5.0	EM
N/A	3D68E-3FB	17.5/2750	17.2	7.8	35.8/2100	17.9	6.2	EM
N/A	3TNE68C-ESA	17.8/3000	16.1	7.9	35.2/2250	17.7	6.5	EM
N/A	3TNE68-EBE	16.5/2800	16.3	7.5	35.8/2100	17.9	6.2	EM